CHAPTER - 7

COMPARISON WITH OTHER METROPOLITAN CITIES OF THE DEVELOPED AND DEVELOPING WORLD

Urbanization in metropolitan cities of developing world, as compared to the metropolitans of developed world has been faster and is often characterized by high rural as well as urban population growth. Not only the rural to urban migration rates are high in Asian metropolitan cities such as Beijing and Delhi, but also the natural growth rates of urban centers are high. This has resulted in the deteriorated civic amenities and acute shortage of infrastructure. So, there is a need to analyze the actual stage, character, and the impact of forces on urban development to help planners evaluate the effectively of growth. London and Beijing have been selected for the study to analyze the situation on the comparative basis to NCT Delhi.

GENERAL INTRODUCTION:

London is the capital of England and the United Kingdom, the largest metropolitan area in the United Kingdom, and the largest urban zone in the European Union by most measures. Located on the River Thames, London has been a major settlement for two millennia, its history going back to its founding by the Romans, who called it Londinium. London’s ancient core, the City of London, largely retains its square-mile mediaeval boundaries. Since at least the 19th century, the name
London has also referred to the metropolis developed around this core. The bulk of this conurbation forms the London region and the Greater London administrative area, governed by the elected Mayor of London and the London Assembly.

Greater London is the top-level administrative subdivision covering London. The small ancient City Corporation resisted attempts to amalgamate it with its suburbs, causing “London” to be defined in a number ways for different purposes. The area within the orbital M25 motorways is normally referred to as London and the Greater London boundary has been aligned to it in places. Outward urban expansion is now prevented by the Metropolitan Green Belt, although the built up area extends beyond the boundary places, resulting in a separately defined Greater London Urban Area. Beyond this is the vast London commuter belt. Greater London is split for some purposes into Inner London and Outer London. The city is split by the River Thames into North and South, with an informal Central London Area in its interior. London is divided into five sub-regions. The current regions were established in 2008 as part of the further alteration to the London Plan. The sub-regions radiate from the Centre to Combine Inner and Outer London Boroughs (Map 7.1).

London is a leading global city, with strengths in the arts, commerce, education, entertainment, fashion, finance, healthcare, media, professional services, research and development, tourism and transport all contributing to its prominence. It is the world’s leading financial centre alongside New York City and has the fifth-largest city
GDP in the world (and the largest in Europe). London’s 43 universities form the largest concentration of higher education in Europe.

On the other hand Beijing, is also the capital of the People’s Republic of China and one of the most populous cities in the world. The metropolis, located in northern China, is governed as a directly-controlled municipality under the national government, with 14 urban and suburban districts and two rural counties. Beijing Municipality is surrounded by Hebei Province with the exception of neighboring Tianjin Municipality to the southeast. Beijing is situated at the northern tip of the roughly triangular North China Plain, which opens to the south and east of the city. Mountains to the north, northwest and west shield the city and northern China’s agricultural heartland from the encroaching desert steppes. The northwestern part of the municipality, especially Yanqing County and Huairou District, are dominated by the Jundu Mountains, while the western part is framed by the Western Hills, or Xishan. The Great Wall of China, which stretches across the northern part of Beijing Municipality, made use of this rugged topography to defend against nomadic incursions from the steppes. Mount Dongling, in the Western Hills and on the border with Hebei, is the municipality’s highest point, with an altitude of 2,303 metres (7,556 ft). Major rivers flowing through the municipality include the Yongding River and the Chaobai River, part of the Hai River system, and flow in a southerly direction. Beijing is also the northern terminus of the Grand Canal of China, which was built across the North China Plain to Hangzhou. Miyun Reservoir, built on the upper reaches of the Chaobai River, is Beijing’s largest
reservoir, and crucial to its water supply (Map 7.2).

**URBAN AREA AND POPULATION:**

At the 2001 census, the population of the Greater London Urban Area was 7,322,400 square kilometres. This area does not include some outliers within Greater London, but does extend into the adjacent South East England and East of England regions. In 2004 the London Plan of the Mayor of London defined a metropolitan region with a population of 18 million. Other definitions of the metropolitan area or *Southeast England* include an area of 16,043 square kilometres (6,194 sq mi) with a population of 13,945,000 in 2001. Eurostat has developed a harmonizing standard for comparing metropolitan areas in the European Union and the population of the London Larger Urban Zone is 11,917,000; it occupies an area of 8,920 square kilometers (3,440 sq mi).

The **demography of London** is analyzed by the Office for National Statistics and data is produced for each of the Greater London wards, the City of London and the 32 London boroughs, the Inner London and Outer London statistical sub-regions, each of the Parliamentary constituencies in London, and for all of Greater London as a whole. Additionally, data is produced for the Greater London Urban Area. Statistical information is produced about the size and geographical breakdown of the population, the number of people entering and leaving country and the number of people in each demographic subgroup.

With increasing industrialization, London’s population grew
rapidly throughout the 19th and early 20th centuries, and it was for some time in the late 19th and early 20th centuries the most populous city in the world until overtaken by New York in 1925. Its population peaked at 8,615,245 in 1939 immediately before the outbreak of the Second World War. There were an estimated 7,556,900 official residents in Greater London as of mid-2007.

However, London’s continuous urban area extends beyond the borders of Greater London and was home to 7,322,400 people in 2001, while its wider metropolitan area has a population of between 12 and 14 million depending on the definition used. According to Eurostat, London is the most populous city and metropolitan area of the European Union and the second most populous in Europe (or third if Istanbul is included). During the period 1991-2001 a net 726,000 immigrants arrived in London.

The Greater London covers an area of 1,579 square kilometres (610 sq mi). The population density is 4,542 inhabitants per square kilometre (11,760 /sq mi), more than ten times that of any other British region. In terms of population, London is the 25th largest city and the 18th largest metropolitan region in the world.

The Beijing is spread over an area of 16801.25 sq. km. The urban compactness of Beijing could be indicated by three different levels: The Metropolitan Area, Central City and the Central Urban Area. The metropolitan area of Beijing, 62% of the total area is mountains region in the northwest part, higher than 100m above sea level, only 38% of the land is available for urban use and agriculture. Under the pressure
of rapid growth, the city on the one hand was forced to sprawl horizontally, transforming itself into large agglomeration; on the other, intensification of the central urban area brought by real estate development was happening simultaneously, improving the compactness and forming new centralities.

In order to understand better the local situation of Beijing, there are some concepts regarding administrative divisions of Beijing metropolitan area, identifying urban and suburban areas. Such as “central city”, “central urban area”, “urban districts”, “near suburban districts”, “outer suburban districts”, which sometimes overlap each other. As shown by Map 7.2, Beijing has four urban districts (Dongcheng, Xicheng, Xuanwu), and the suburban area is officially divided into four near suburban districts (Haidian, Chaoyang, Fengtai, Shijingshan), eight outer suburban districts (Changping, Huairou, Shunyi, Pinggu, Tongzhou, Daxing, Fangshan, Mentougou), and two outer counties (Miyun, Yanqing), in total there are 4003 villages in 143 towns. This administrative division was made in 1950s, and within that period, the urban area of Beijing was the old city, and the four near suburban districts were around the old city boundary. During the past 50 years, this administrative division was hardly modified, while the urban area has already extended much more, that is to say, the four near suburban districts are partly urban and partly rural today. Nowadays, the total urbanized areas are named as central urban area, and the four urban districts plus the four near suburban districts are called central city.

The registered population of Beijing Municipality consists of
people holding either Beijing permanent residence *hukou permits* or temporary residence permits. The 2010 census revealed that the total population in Beijing had reached 19.6 million. In 2006, the population of the urban core was 13.33 million, 84.3 percent of the total municipal population, which officially stood at 15.81 million. Urban sprawl continues at a rapid pace. Since 1990s, residential mobility in the city of Beijing has been increased dramatically, with the tendency of floating from urban to near suburban areas. In the year 2000, the population of the four urban districts is 2.115 million in total, 0.471 million less comparing with the year 1995, and the population density is 24,072 persons/km$^2$; the population of the four near suburban districts is 6.388 million in total, 1.557 million more than 1995, and the population density is 4,958 persons/km$^2$. According to China’s Population Census made in 2000, only 34.6% of the permanent population lived in the same district since they were born. 2/3 of the permanent population in Beijing is internal migrant population, and according to the statistics on migration time in the past 5 years, internal migration increased annually.

**TABLE - 7.1**

Comparative study of urban area & urban population

<table>
<thead>
<tr>
<th></th>
<th>Urban area (sq. km.)</th>
<th>% of the total area</th>
<th>Urban population</th>
<th>% of the total population</th>
<th>Population density (persons / sq. km.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>1570</td>
<td>100</td>
<td>7,322,400</td>
<td>100</td>
<td>4542</td>
</tr>
<tr>
<td>Beijing</td>
<td>4421.38</td>
<td>38</td>
<td>15,182,368</td>
<td>84.3</td>
<td>1200</td>
</tr>
<tr>
<td>NCT Delhi</td>
<td>924.68</td>
<td>62</td>
<td>12,905,780</td>
<td>93.18</td>
<td>9340</td>
</tr>
</tbody>
</table>

Table 7.1 shows the picture of urban sprawl and growth of urban
population amongst the three metropolitan cities of developing and developed world. London is fully urbanized metropolitan city having 100% urban area with 100% urban population, but the Beijing has only 38% urban area of the total land and residing 84.35 urban population. NCT Delhi also has only 62% urban area of the total with the 93.18% urban population. It may be noted from the above comparative statement that the highest density of population was recorded in NCT Delhi i.e. 9340 persons / sq. km., which is more than 48.62% from London and 77.83% from Beijing.

CIVIC AMENITIES:

(a) Drinking water:

The majority of London’s water supply comes from two sources; from rivers such as the Thames and Lea, and from boreholes that are driven deep into the chalk aquifers. It is situated at the eastern edge of the London Basin Syncline, which is Britain’s most extensive chalk aquifer. Groundwater is an essential source of high quality water and accounts for approximately 40% of public water supply in the Thames region. However, although borehole water is of a better quality than the water from rivers and requires less treatment, the supply is limited and so river water is stored in reservoirs that surround London to the North and West. River water first passes into reservoirs where it is stored, before being transported into the Water Treatment Works where it is turned into domestic supply. London’s reservoirs store on average 30 million cubic meters of water and are
found to the North in the Lea Valley, and to the West of London. The reservoir to the West of London are supplied by the tributaries of the Thames while the reservoirs in the Lea Valley are supplied by the River Lea and the New River, a 400 year old aqueduct. Although used primarily for water storage, reservoirs are also utilized in the first phases of the water treatment process. Londoners currently use more water than the national UK average, 161 liters per person per day, as opposed to 150 liters per person per day. The present balance of supply and demand in London is in deficit by approximately 180 million liters per day.

On average, only about 10 per cent of freshwater resources in London are abstracted. Water companies abstract almost half of this amount. The remainder is used for cooling power plants, other industries, fish farming and other uses. Water companies use mainly surface water (two thirds), but also groundwater (one third).

The amount of water available in London to meet the needs of people and to sustain the water environment varies greatly between different places and seasons, and from one year to another. The different parts of London are well endowed with water, while water is scarce in parts of Eastern and Southeastern London. Household water use in London stood at about 161 liters/capita/day in 2001. Total water supply for domestic and commercial customers in London was 14.5 billion cubic meters per day in 2001.

The quality of water and sanitation services in London is regularly and comprehensively monitored by the economic regulator,
OZWAT. OZWAT statistics show that service quality has improved since the early 1990s, i.e. shortly after services were privatized. For example, the numbers of unplanned interruptions, properties at risk of low pressure, the share of complaints that were not answered within five days and combined sewer overflows have all declined, while sewage treatment works compliance has increased and river water quality has improved. A comparison with service quality in other areas of the European Union is difficult, since in few other countries such comprehensive water and sanitation service quality data are being published as it is being done by OZWAT. Drinking water quality is also universally high, although isolated incidents where quality falls have occurred.

Beijing’s water resources include surface water 20-30% and groundwater 70-80%. Surface water refers to water in rivers, lakes, and reservoirs. The amount of surface water available fluctuates within and between years depending on rainfall. Beijing’s rainfall varies geographically, seasonally and annually. Available water supply refers to the amount of water available for treatment and distribution through the city’s water pipeline system. These figures do not include water that is reused after treatment. Taking surface water and groundwater, the Beijing Water Bureau estimates the volume of exploitable water resources ranges from 3.0 to 4.12 billion cubic meters per year, depending on rainfall.
TABLE - 7.2
Comparative study of total available water supply and demand
(Billion cubic meters / year)

<table>
<thead>
<tr>
<th>City</th>
<th>Total available water</th>
<th>Water supply</th>
<th>Water demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>14.5</td>
<td>12.16</td>
<td>6.03</td>
</tr>
<tr>
<td>Beijing</td>
<td>4.12</td>
<td>3.40</td>
<td>5.05</td>
</tr>
<tr>
<td>NCT Delhi</td>
<td>1.44</td>
<td>1.11</td>
<td>2.68</td>
</tr>
</tbody>
</table>

The water supply capacity of Beijing was under sufficient guarantee. There was 598 million tons of tap water sold in the year, down by 0.2 percent from the previous year, of which, 498 million tons were sold for living water, down by 0.7 percent from the previous year. The Huairou Emergency Backup Water Source project was completed and began to supply water. The Zhangfang and Pinggu Emergency Water Supply Projects, and the South-North Water Transfer Shijiazhuang-Beijing Section water main project were started within the year.

Beijing Water Bureau estimates the municipality’s available water supply (based on a multiyear average) is about 4 billion cubic metres annually. Since 1949, the amount of water resources available per person has dropped from 1000 cubic metres to less than 230 cubic metres as of 2008. As such, Beijing has become one of the world’s most water-scarce megacities with per capita water use now less than one-thirtieth of the world average.

Since the Yuan Dynasty (1271), Beijing residents have relied on springs and shallow wells to draw groundwater for household use. Shallow groundwater was plentiful and easily accessible within a few
metres of ground level, particularly on the alluvial plains between the Yongding and Chaobai river valleys. Water was also diverted to the city from springs in Beijing’s western hills, such as the well-known Yuquanshan, Wanquanzhuang, and Lianhuachi springs.

Water consumption within Beijing municipality can be categorized by sector with percentage as follows:

1. Domestic 39%
2. Agriculture 38%
3. Industry 20%
4. Urban Environment 03%

Beijing built its first municipal water treatment works in 1908, which had a daily supply capacity of 25,000 cubic metres. By 1949, the plant’s daily supply capacity had increased to 58,000 cubic metres, which was enough to supply one-third of the city’s population of 4.14 million. As Beijing’s urban population grew and lifestyles changed, the municipality expanded its water supply system to reach more households.

The data show the following:

* Daily per capita domestic water use in urban districts increased seventeen-fold from 0.018 cubic metres in 1950 to 0.302 cubic metres in 1955.

* The volume of tap water used in urban districts increased from 7.0 million cubic metres in 1950 to 466 million cubic metres in 1995.
As of 1995, tap water use had increased to 76 percent of total domestic water supply in urban districts, compared to 49 percent of total water use in 1970.

Delhi is largely dependent on surface water bought from distant sources. The River Yamuna in Delhi is the only major source of surface water. It does not always have enough water to meet the requirements of the capital city, so Delhi faces an acute water crisis in every summer. The total water available in Delhi through surface and ground sources is 1.44 billion cubic metres per year but the water supply is 1.11 billion cubic metre per year. The water demand in Delhi is 2.68 billion cubic metre per year.

(b) EDUCATION:

Primary and secondary education:

The majority of primary and secondary schools in London are state schools and are controlled by the London boroughs, although there are also a number of private schools in London, including old and famous schools such as the City of London School, Harrow, St. Paul’s School, University College School, Highgate School and Westminster School. According to statistical data of London 2010, the total number of qualified teachers are 186,210 and the unqualified teachers are 4670 in primary schools and in secondary schools the total number of qualified teachers are 208,130 and unqualified are 11780. The pupil teacher ratio is 1:21 in primary level and 1:16 in secondary level.

Basic education led the Beijing. The entrance rate of school-age
children in Beijing kept higher than 99.9 percent. And the gross entrance rate in junior high schools remained at 100 percent. Enrollment in general senior high schools especially high-quality ones increased gradually. Actual new entrants in general senior high schools numbered 95,000. For senior high schools, the entrance rate was 95 percent over.

Teaching reform was deepened continuously for the technical secondary education. Evaluation was completed for 8 backbones of special technical secondary schools in Beijing. Demonstration was implemented for 7 key experimental training base schools. The construction of 10 modern symbol schools was started fully. Five key schools at the state level and three at the provincial and ministry level were assessed. There were 263,000 enrolled students in technical secondary schools, technical training schools and vocational middle schools, 11,000 more than the previous year. Of which, the enrolled students in vocational middle schools were 84,000.

The education informatization was upgraded clearly. As an important integral part of the “Digital Beijing” project, the “School-School interconnection” project progressed smoothly. More than 10 million yuan was invested in the improvement of conditions for network-based education. The construction of 123 network computer classrooms and 205 computer classrooms was completed. A total of 557 primary and high school networks were built. University campus network information sites numbered 76,000, which were under the
Municipal jurisdiction and administration, with 59,000 online computers. During the period of SARS epidemic, new education forms of “Air Classroom” and “Education Online” were launched, with the information-based education playing an important role.

Over the years Delhi has established an extensive network of educational institutions offering among the finest education within India. In 2006-07, 98377 teachers were teaching around 5.43 million children enrolled in 5081 schools, which include 2688 pre-primary and primary schools, 638 middle schools and 1755 secondary/senior secondary schools.

Tertiary education:

**London** is a major centre of higher education teaching and research and its 43 universities form the largest concentration of higher education in Europe. In 2008-09 it had a higher education student population of around 412,000 (approximately 17 percent of the UK total), of whom around 287,000 were registered for undergraduate degrees and 118,000 were studying at postgraduate level. In 2008-09 there were around 97,150 international students in London, approximately 25 percent of all international students in the UK.

A number of world-leading education institutions are based in London. In the 2011 *QS World University Rankings* Imperial College London is ranked 6th, University College London (UCL) 7th and King’s College London 27th in the world. The London School of Economics has been described as the world’s leading social science institution for
both teaching and research. The London Business School is considered one of the world’s leading business schools and in 2010 its MBA programme was ranked best in the world by the *Financial Times*.

With 125,000 students, the Federal University of London is the largest contact teaching university in Europe. It includes four large multi-faculty universities – King’s College London, Queen Mary, Royal Holloway and UCL – and a number of smaller and more specialised institutions including Birkbeck, the Courtauld Institute of Art, Goldsmiths, Guildhall School of Music and Rama, the Institute of Education, the London Business School, the London School of Economics, the London School of Hygiene & Tropical Medicine, the Royal Academy of Music, the Central School of Speech and Drama, the Royal Veterinary College and the School of Oriental and African Studies. Members of the University of London have their own admission procedures, and some award their own degrees.

There are a number of universities in London which are outside of the University of London system, including Brunel University, City University London, Imperial College London, Kingston University, London Metropolitan University (with over 34,000 students, the largest unitary university in London), London South Bank University, Middlesex University, University of the Arts London (the largest university of art, design, fashion, communication and the performing arts in Europe), University of East London, the University of West London and the University of Westminster. In addition there are three international universities in London – Regent’s College, Richmond University and
London is home to five major medical schools – Barts and The London School of Medicine and Dentistry (part of Queen Mary), King’s College London, School of Medicine (the largest medical school in Europe), Imperial College School of Medicine, UCL Medical School and St. George’s, University of London – and has a large number of affiliated teaching hospitals. It is also a major centre for biomedical research, and three of the UK’s five academic health science centres are based in the city – Imperial College Healthcare, King’s Health Partners and UCL Partners (the largest such centre in Europe). There are a number of business schools in London, including Cass Business School (part of City University London), ESCP Europe, European Business School London, Imperial College Business School and the London Business School. London is also home to many specialist arts education institutions, including the Academy of Live and Recorded Arts, the London Contemporary Dance School, RADA, the Royal College of Art, the Royal College of Music and Trinity Laban.

The education in all forms and at all levels developed fully in **Beijing**. Higher education took the lead in stepping into a stage of popularization. There were totally 73 general colleges and universities in Beijing, representing an increase of 11 over the previous year. 46 general colleges and universities as well as 118 research institutions trained graduate students. There were 457,000 enrolled undergraduate students, up by 17 percent. The number of enrolled graduated students topped 100,000 for the first time to 120,000 up by 23.2 percent. There
were 17,000 international students in Beijing. Enrollment of higher education was enlarged continuously with 142,000 new entrants in the year representing a historical record. The gross entrance rate of higher education in Beijing was 52 percent, 3 percentage points higher than the previous year. In 2003 the number of students graduated from higher education was 83,000. Employment rate of students graduated from universities in Beijing reached 89.7 percent.

In 2000, 133,000 new students were enrolled in senior high school. 95 percent of the students who graduated from junior high school entered senior high school. There were 23,000 new entrants of graduate students in colleges and universities in Beijing, up 37.5 percent over the previous year. The number of enrolled regular four-year college students totalled 75,000 in the year, up 26.8 percent. There were 104,000 new entrants of adult colleges and universities in the year, up 17.8 percent. The basic rate of the population aged from 18 to 22 years entering institutions of higher education reached 40 percent, top of China. Upon adjustment, regular colleges and universities in Beijing numbered 59; adult colleges and universities numbered 61; secondary vocational and technical schools numbered 393, and primary schools numbered 2169. The average number of students for four-year college courses and technical courses was 4789, an increase of 1132 from the previous year. Beijing’s people have a relatively higher educational level than that of other regions. The enrollment and examination system was reformed, with the achievements of 9-years compulsive education solidified.
(c) HEALTH:

The environment for medical health was further optimized. There were 4,998 health care institutions in Beijing with a total of 75,000 beds averaging 6.46 hospital beds per 1,000 persons. There were 110,000 health workers averaging 4.2 practicing physicians per 1,000 persons. Hardware facilities of hospitals were approaching to the advanced international level gradually 100 percent hospitals were provided with general medical equipment.

The emergency mechanism for public epidemic prevention and medical first aid was established preliminarily. Upon the occurrence of SARS epidemic, the designated hospitals and emergency curing system were built promptly and firmly, laying solid foundation for an improved public health system. Biological and microbe labs were further improved. 59 AIDS labs and 262 monitor sites of intestinal infections were built. The harmful degree of infectious diseases was weakened distinctly.

Health care in rural areas was promoted fully. The new-type rural cooperative medical system focusing on the general health care program for major diseases was put into practice fully in 10 districts and counties in the exurb of Beijing. A total of 1.73 million farmers of Beijing participated in the new-type rural cooperative medical system. Rural water transformation and washroom transformation made new progress. Water transformation projects completed in the rural area of Beijing totalled 111 in number, benefiting 270,000 farmers. A total of 438 villages in 101 towns in 11 districts and counties took part in the
rural washroom transformation. The spreading rate of sanitary washroom was 73 percent in Beijing.

Delhi offers among the most sophisticated medical care with the latest state of the art technology for treatment and the best qualified doctors in the country. Government agencies such as MCD, NDMC, Railways, Cantonment Board, ESI, and Central Government besides Delhi Government’s own network of dispensaries and hospitals are instrumental in delivery of health care services to Delhi ties. The total no. of hospitals and dispensaries in Delhi were 85 and 1022 respectively in 2002 and the total bed capacity of the medical institutions in Delhi was 33278 in 2006.

(d) ENVIRONMENTAL POLLUTION:

Air quality in the London has improved significantly since the time of the Great Smog in London 50 years ago. The annual mean concentration index increased for all pollutants during 2003 in London. The largest increases were exhibited by NO2 (8%), PM10 (11%) and O3 (16%). These changes differ markedly from the decreasing trends in air pollution seen in London over the previous 7 years when annual mean concentrations of all pollutants, except O3, decreased during the period November 1996 to the end of 2003. The greatest reductions in annual mean concentration were exhibited by SO2 (63%) and CO (50%). A laser reduction was achieved for PM10 (25%) and NOX (29%). Despite the 29% reduction in NOX concentration, the annual mean concentration of NO2 at the end of 2003 was only 2% below its value during November 1996.
There are 176 degree colleges in NCT Delhi, of these, 86 colleges are affiliated with Delhi University and remaining 88 colleges are affiliated with Guru Gobind Singh Indraprastha University. These include Delhi Govt. sponsored 28 Delhi University College, of which 12 are fully funded by Delhi Government. Delhi also have 6 universities, including one Open University, 8 Deemed Universities and 2 Institutes of national importance.

There have been many measurements of fine Particulate Matter (PM) in Beijing made over the past five years. These have found average summertime daily PM10 concentrations to range from 94 to 251 mgm_3 (Bergin et al., 2001; Chan et al., 2005). A maximum value of 368 mgm_3 was measured at the Southern Observational Base (SB) of the Chinese Academy of Meteorological Sciences (CAMS) in August 2003 (Chan et al., 2005). Thus, average concentrations of PM10 in Beijing have often exceeded the US NAAQS and China’s Grade II standard in recent years. Occasionally, there have been exceedances of China’s Grade III standard of 250 mgm_3 for daily PM10 concentrations. Daily PM2.5 concentrations in Beijing have been found to be very high in comparison to the US NAAQS value of 65 mgm_3. Average daily PM2.5 concentrations in recent studies ranged from 91 to 169 mgm_3 (Bergin et al., 2001; Chan et al., 2005).

Joint research between American and Chinese researchers in 2006 concluded that much of the Beijing’s pollution comes from surrounding cities and provinces. On average 35-60% of the ozone can be traced to
sources outside the city. Shandong Province and Tianjin Municipality have a “significant influence on Beijing’s air quality”, partly due to the prevailing south/southeasterly flow during the summer and the mountains to the north and northwest.

Beijing also implemented a number of air improvement schemes for the duration of the Games, including stopping work on all construction sites, closing many factories in and around Beijing, closing some gas stations, and cutting motor traffic by half by limiting drivers to odd or even days (based on their license plate numbers). Two new subway lines were opened and thousands of old taxis and buses were replaced to encourage residents to use public transport. The Beijing government encouraged a discussion to keep the odd-even scheme in place after the Olympics, and although the scheme was eventually lifted on 21 September 2008, it was replaced by new restrictions on government vehicles and a new restriction that does not allow the use of a car once a week. In addition, staggered office hours and retail opening times have been encouraged to avoid the rush hour, and parking fees were increased.

Beijing became the first city in China to require the Chinese equivalent to the Euro 4 emission standard. Some 357,000 “yellow label” vehicles – those that have too high emission levels – have been banned from Beijing altogether. The government regularly uses cloud-seeding measures to increase the likelihood of rain showers in the region to clear the air prior to large events as well as to combat drought
conditions in the area. One year after the 2008 Olympics, Beijing’s officials reported that the city was enjoying the best air quality this decade because of the measures taken during the Games. Nonetheless, Beijing still faces air pollution problems.

**NCT Delhi** faces the worst among all the three metropolitan cities when it comes to air pollution. This, despite the introduction of eco-friendly interventions such as the use of CNG for vehicles, the Metro and increasing tree cover in the capital. The city has the highest level of air pollutants called particulate matter less than 10 microns (PM$_{10}$). To make matters worse, the PM$_{10}$ levels have risen during the last three years. According to the National Ambient Air Quality Standards, the normal annual average for PM$_{10}$ is 60 micrograms per cubic metre. In the last three years, PM$_{10}$ in Delhi has gone up from 198 in 2008 to 243 in 2009 and 259 in 2010.

**CONCLUSION:**

In comparison to urbanized London Beijing is a highly developed city of the world. Beijing has only 38% of its total Municipal Area. However, NCT Delhi has 62% urbanized to total Municipal Area. The total population of London belong to the urbanized city in comparison Beijing has 84% and Delhi has 93%. The population Density of NCT Delhi is more than double to the London and more than seven times to the Beijing that is 9340 per sq. Km.

When one can compare the availability of water supply and demand of drinking water, London has more or less equal scenario in
availability and supply which is double to the demand of drinking water. The situation of water supply and demand of Beijing and Delhi is altogether different which is half in comparison to the demand.

London has 43 wellknown world level universities and sufficient location of multiple institutions in comparison to Beijing where the regular colleges and universities are numbered 59, and NCT Delhi, where the seven major universities and nine deemed universities are located. In this comparative study the NCT Delhi has less sufficient location in comparison to Beijing and London.

The employment rate of students graduated from Universities in Beijing has been reached 89.7% in comparison to London, where the employment rate is 67.5% and NCT Delhi with 53%. In this regard it is concluded that Delhi is fastly developing Metropolitan City with its less infrastructures and highly progressive area and highly progress rate of population in comparison to London and Beijing.

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